

LISTING OF THE CLAIMS

1 (currently amended): A highly impact-resistant steel pipe characterized in that; the steel pipe is a water quenched steel pipe and the steel pipe consists essentially of, in mass, 0.19 to 0.35% C, 0.10 to ~~0.30~~ 0.27% Si, where the Si amount is controlled in a range from $(\text{Mn}/8 - 0.07)$ to $(\text{Mn}/8 + 0.07)$, 0.5 to 1.60% Mn, not more than 0.025% P, not more than 0.01% S, 0.010 to 0.050% Al, 2 to 35 ppm B, 0.005 to 0.05% Ti, not more than 0.5% Cr, not more than 0.5% Mo, and the balance being Fe and unavoidable impurities, and the tensile strength TS of said steel pipe is 1,700 MPa or more, and YR thereof, said YR being the ratio of the 0.1%-proof stress YS to said tensile strength TS (YS/TS), is 72% or less.

2 (currently amended): A highly impact-resistant steel pipe characterized in that; the steel pipe is a water quenched steel pipe and the steel pipe consists essentially of, in mass, 0.19 to 0.35% C, 0.10 to ~~0.30~~ 0.27% Si, where the Si amount is controlled in a range from $(\text{Mn}/8 - 0.07)$ to $(\text{Mn}/8 + 0.07)$, 0.5 to 1.60% Mn, not more than 0.025% P, not more than 0.01% S, 0.010 to 0.050% Al, 2 to 35 ppm B, 0.005 to 0.05% Ti, not more than 0.5% Cr, not more than 0.5% Mo, and the balance being Fe and unavoidable impurities, and the tensile strength TS of said steel pipe is 1,800 MPa or more, and YR thereof, said YR being the ratio of the 0.1%-proof stress YS to said tensile strength TS (YS/TS), is 70% or less.

3 (currently amended): A highly impact-resistant steel pipe characterized in that; the steel pipe is a water quenched steel pipe and the steel pipe consists essentially of, in mass, 0.19 to 0.35% C, 0.10 to ~~0.30~~ 0.27% Si, where the Si amount is controlled in a range from $(\text{Mn}/8 - 0.07)$ to $(\text{Mn}/8 + 0.07)$, 0.5 to 1.60% Mn, not more than 0.025% P, not more than 0.01% S, 0.010 to 0.050% Al, 2 to 35 ppm B, 0.005 to 0.05% Ti, not more than 0.5% Cr, not more than 0.5% Mo, and the balance being Fe and unavoidable impurities, and the tensile strength TS of said steel pipe is 1,900 MPa or

more, and YR thereof, said YR being the ratio of the 0.1%-proof stress YS to said tensile strength TS (YS/TS), is 68% or less.

4 (currently amended): A highly impact-resistant steel pipe characterized in that; the steel pipe is a water quenched steel pipe and the steel pipe consists essentially of, in mass, 0.19 to 0.35% C, 0.10 to ~~0.30~~ 0.27% Si, where the Si amount is controlled in a range from (Mn/8 - 0.07) to (Mn/8 + 0.07), 0.5 to 1.60% Mn, not more than 0.025% P, not more than 0.01% S, 0.010 to 0.050% Al, 2 to 35 ppm B, 0.005 to 0.05% Ti, not more than 0.5% Cr, not more than 0.5% Mo, and the balance being Fe and unavoidable impurities, and the tensile strength TS of said steel pipe is 2,000 MPa or more, and YR thereof, said YR being the ratio of the 0.1%-proof stress YS to said tensile strength TS (YS/TS), is 66% or less.

Claim 5: (canceled).

6 (original): A highly impact-resistant steel pipe according to any one of claims 1 to 4, characterized in that the dislocation density of said steel pipe is in the range from 10^{10} to $10^{14}/\text{mm}^{-2}$.

Claim 7: (canceled).

8 (previously presented): A highly impact-resistant steel pipe according to any one of claims 1 to 4, characterized in that the steel of said steel pipe further consists essentially of, in mass, one or more components selected from among the group of 0.005 to 0.050% Nb, 0.005 to 0.070% V, 0.005 to 0.5% Cu, 0.1 to 0.5% Mo, 0.1 to 0.5% Ni, not more than 0.01% Ca, and not more than 0.1% rare earth metals (REMs).

9 (previously presented): A highly impact-resistant steel pipe according to any one of claims 1 to 4, characterized in that 95% or more of the microstructure of said steel pipe is martensite.

10 (previously presented): A highly impact-resistant steel pipe according to any one of claims 1 to 4, characterized in that said steel pipe has a round or square sectional shape.

11 (currently amended): A method for producing a highly impact-resistant steel pipe according to any one of claims 1 to 4, characterized in that said steel pipe consists essentially of, in mass, 0.19 to 0.35% C, 0.10 to ~~0.30~~ 0.27% Si, 0.5 to 1.60% Mn, not more than 0.025% P, not more than 0.01% S, 0.010 to 0.050% Al, 2 to 35 ppm B, and 0.005 to 0.05% Ti as indispensable components, and further one or more components selected from among the group of 0.005 to 0.050% Nb, 0.005 to 0.070% V, 0.005 to 0.5% Cu, 0.1 to 0.5% Mo, 0.1 to 0.5% Ni, not more than 0.01% Ca, and not more than 0.1% rare earth metals (REMs), is subjected to induction heating and then water quenching.

12 (original): A method for producing a highly impact-resistant steel pipe according to claim 11, characterized in that the cooling rate of said water quenching is 100°C/sec. or higher.

13 (previously presented): A method for producing a highly impact-resistant steel pipe according to claim 12, characterized in that the cooling water temperature of said water quenching is 35°C or lower.

14 (currently amended): A method for producing a highly impact-resistant steel pipe according to claim 12 wherein 95% or more of the microstructure of said steel pipe is transformed into martensite by said induction heating followed by said water quenching and the ~~a~~ prior austenite grain size number of said steel pipe is #6 or more.

15 (previously presented): A highly impact-resistant steel pipe according to any one of claims 1 to 4, wherein the maximum content of Mn is 1.44%.

16 (previously presented): A highly impact-resistant steel pipe according to any one of claims 1 to 4, wherein the maximum content of Cr is 0.15%.